# Signal Booster Installation Guide

In-Building Wireless *Smart Technology* Signal Booster

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**Note:** This manual contains important safety and operating information. Please read and follow the instructions in this manual. Failure to do so could be hazardous and result in damage to your signal booster.

Wilson® Electronics, Inc.

## Installation Instructions for the Following Wilson Signal Boosters:

**In-Building Wireless Cellular Smart Technology™ 50 dB Signal Booster**
Model # 801105
FCC ID: PWO8011SB IC: 4726A-8011SB

**In-Building Wireless Cellular Smart Technology™ 60 dB Signal Booster**
Model # 801106, Part # 801108, Part # 801110
FCC ID: PWO8011SB IC: 4726A-8011SB

**In-Building Wireless PCS Smart Technology™ 60 dB Signal Booster**
Model # 801306
FCC ID: PWO8013SB IC: 4726A-8013SB

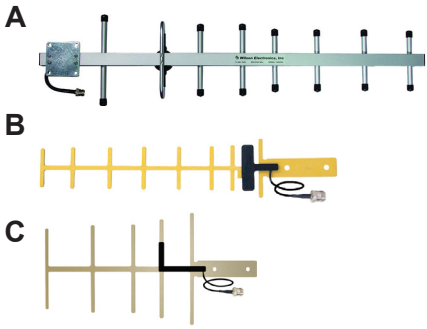
**In-Building Wireless iDEN Smart Technology™ 50 dB Signal Booster**
Model # 804005
FCC ID: PWO8040SB IC: 4726A-8040SB

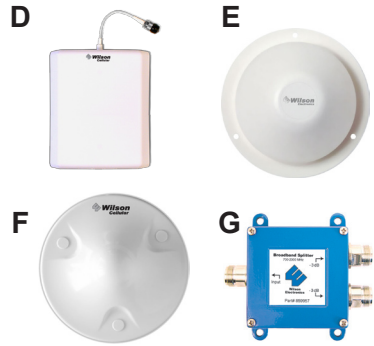
**In-Building Wireless iDEN Smart Technology™ 60 dB Signal Booster**
Model # 804006
FCC ID: PWO8040SB IC: 4726A-8040SB

**In-Building Wireless 900 MHz Smart Technology™ 60 dB Signal Booster** Model # 801506, Model # 801606, Model # 801170, Model # 801370
Not for sale in the U.S. and Canada.

The term “IC” before the radio certification number only signifies that Industry Canada technical specifications were met.

## Antenna Options & Accessories



**A** 13 dB 800 MHz Yagi Cellular Antenna (301111)
**B** 1900 MHz Yagi PCS Antenna (301124)
**C** 800 MHz Yagi Cellular Antenna (301129)
**D** Dual-Band Panel Antenna (301135)
**E** Dual-Polarity Dome Antenna (301123)
**F** Dual-Band Dome Antenna (301121)
**G** Splitters (Multiple splitters available)
**H** Signal Booster Soft Cases
**I** Omni-Directional Antenna (301201)
**J** Marine Antenna (301130)


*Contact Wilson Electronics Technical Support Team with any questions at 866-294-1660 or email: tech@wilsonelectronics.com. Hours: 7 am to 6 pm MST.*

## Before Getting Started

This guide will help you properly install Wilson Electronics In-Building Wireless Smart Technology™ Signal Boosters. **It is important to read through all of the installation steps for your particular application prior to installing any equipment.** Read through the instructions, visualize where all the equipment will need to be installed and do a soft installation before mounting any equipment. If you do not understand the instructions in full, seek professional help, or contact Wilson Electronics Technical Support at 866-294-1660.

## Inside this Package

- In-building wireless signal booster
- AC/DC 110 volt power supply

In-building wireless signal booster

AC/DC plug-in power supply. (Sold separately in 801175)

## Additional Required Equipment (sold separately)

- Outside antenna (Yagi recommended)
- Inside dome, panel or low-profile antenna
- Antenna coax cable

## How it Works

Wilson Electronics signal boosters are small, portable, bi-directional devices that deliver service levels consistent with what would be expected in areas of high cell network coverage. They amplify a weak or shadowed signal in mobile, marine and in-building applications.

When using a Wilson Electronics signal booster in conjunction with Wilson Electronics antennas, the outside antenna will collect the cell tower signal and send it through the cable to the signal booster. The signal is then amplified and broadcast from the inside antenna to the surrounding area. Cell phones and cellular data cards in that area then communicate with the improved signal. When a cell phone or cellular device transmits, the signal is received by the inside antenna, amplified by the signal booster and broadcast back to the cell tower through the outside antenna.

## Installation Overview

The following steps provide a summary of the signal booster/antenna installation process. However, they are **not** a substitute for the complete installation instructions on the following pages, which you should read thoroughly. Contact Wilson Electronics Technical Support Department with any questions at 866-294-1660.

### STEP 1 Install the Outside Antenna

Mount the Yagi antenna so that it points toward the cell tower and away from where the inside antenna will be located. Depending on your signal booster model, the two antennas will need 50-75 feet of separation. (See illustrations on pages 5 and 7.)

### STEP 2 Install the Inside Antenna

Select a location in the center of where the signal needs to be amplified. Refer to the instructions included with the inside antenna. (See illustration on page 6 to determine the inside antenna model that best meets your specific needs.)

### STEP 3 Install the Signal Booster

Position the signal booster in a well-ventilated location near a power outlet. Attach the outside and inside antennas to the signal booster using Wilson 400 low loss coax cable (available from Wilson Electronics).

### STEP 4 Power up the Signal Booster

***IMPORTANT!*** Before connecting the power supply, ensure that both the inside and outside antenna cables are connected. Also ensure that all cell phones and cellular data cards within 50 feet of the inside antenna are turned off. Plug in the supplied 6-volt power supply into the signal booster and then into a wall outlet (power supply sold separately in 801175).

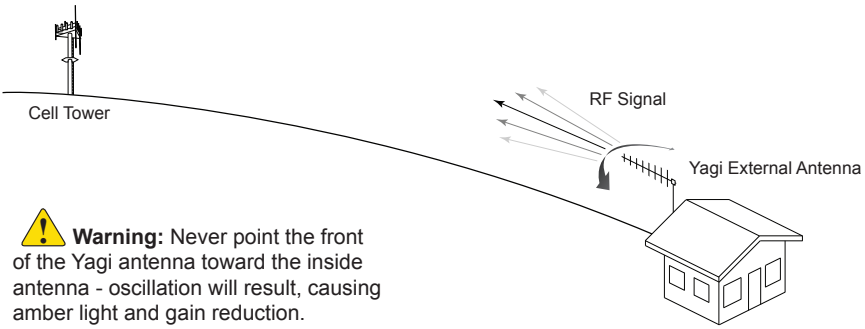
### STEP 5 Check the Signal Booster Lights

The PWR light should be green, indicating that the signal booster has power. If all other lights are also green, the signal booster is operating properly; however, if you do not have the desired signal coverage area, refer to pages 5, 6, 9 and 10.

Note: if you are using an outdoor Yagi antenna, it must be adjusted for maximum signal.

## Installing a Wilson Electronics Outside Antenna

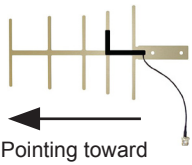
Select a location on the roof of the building to install the outside antenna, using a cell phone in test mode to find the strongest signal from the cell tower.




**Warning:** Never point the front of the Yagi antenna toward the inside antenna - oscillation will result, causing amber light and gain reduction.

For test mode help, visit www.wilsonelectronics.com or call Technical Support at 866-294-1660. Follow the specific antenna installation instructions included with the outside antenna.

**CORRECT**



Pointing toward cell tower

Lightning protection is recommended for all in-building installations. Take extreme care to ensure neither you nor the antenna come in contact with any electrical power lines.

A Yagi antenna must be installed horizontally with the elements vertical and the drip hole on the bottom. Ensure there are three feet of clearance in all directions surrounding the antenna.

**NOT CORRECT**

**Warning:** The outside antenna must be installed on an outdoor permanent structure with a separation of at least 20 feet from all persons during normal operation.

## Installing a Wilson Electronics Inside Antenna

Select a suitable location for the inside antenna, preferably in the center of where the signal needs to be amplified. To determine signal strength and coverage distance, refer to page 12 of this installation guide.

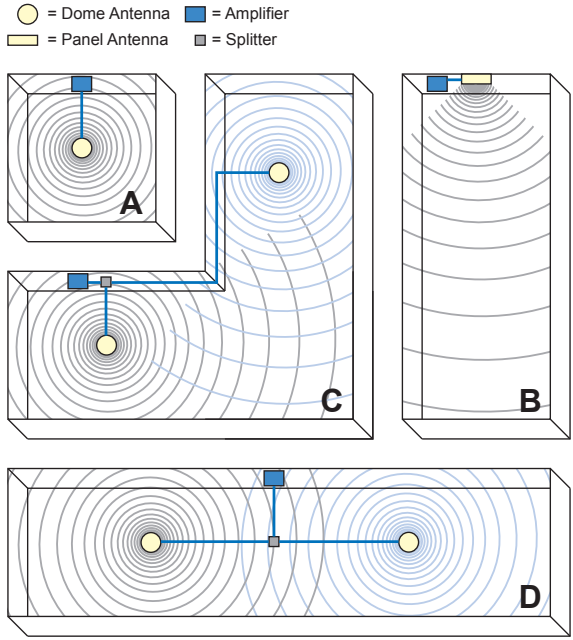
Follow the specific antenna installation instructions included with the inside antenna.

Wilson Electronics has several inside antenna options. The dome and panel antennas are the most popular for in-building applications.

For a square room, a dome antenna will provide better coverage. (A)

For a rectangular room, a panel antenna will provide better coverage. (B)

In some cases, multiple inside antennas may be required (C & D). A signal may be "split" by using a splitter. If using more than one inside antenna, a separation of at least 20 feet is necessary between inside antennas.




Connect the coax cable from the signal booster to the inside antenna. For distances of 20 feet or more, use Wilson 400 low loss coax cable to prevent significant signal loss.

⚠ Warning: An inside antenna must have a separation distance from all persons that is at least 12 inches for the 5.2 dBi dome antenna and 15 inches for the 7 dBi panel antenna.



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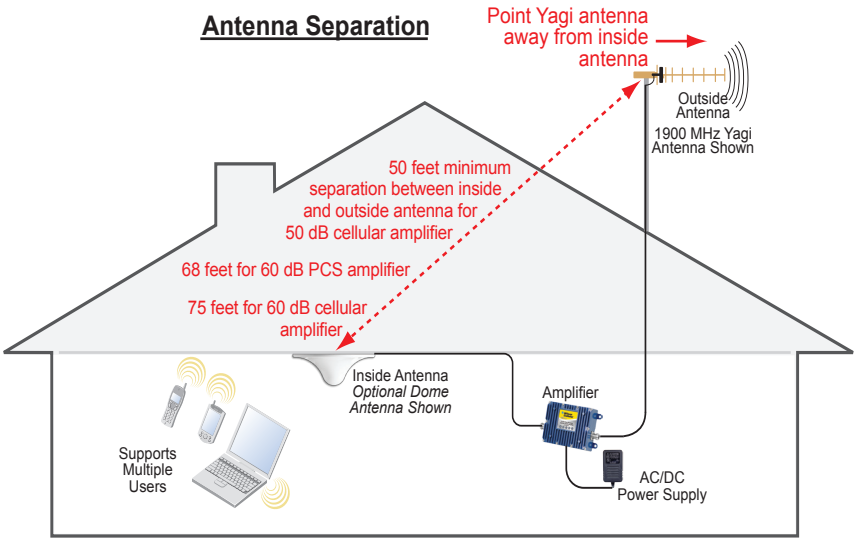
## Installing a Wilson Electronics Signal Booster

Select a location to install the signal booster that is away from excessive heat, direct sunlight, moisture and that has proper ventilation. Do not place the signal booster in an air-tight enclosure.

Recommended installation locations for in-building signal boosters are:
- On a wall
- On the ceiling
- Near a power outlet

Run the outside antenna cable to the signal booster and attach it to the N-Female connector labeled “outside antenna” on the signal booster. Run the inside antenna cable to the signal booster and attach it to the N-Female connector labeled “inside antenna” on the signal booster.

Note: Be careful when plugging the connector in so as not to damage the center pins on the connectors.


Antenna Separation
Point Yagi antenna away from inside antenna
Outside Antenna
1900 MHz Yagi Antenna Shown
50 feet minimum separation between inside and outside antenna for 50 dB cellular amplifier
68 feet for 60 dB PCS amplifier
75 feet for 60 dB cellular amplifier
Inside Antenna
Optional Dome Antenna Shown
Amplifier
AC/DC Power Supply
Supports Multiple Users

Connect the outside antenna to the signal booster with Wilson 400 low loss coax cable (available from Wilson Electronics). Place the inside antenna in the center of the area needing the amplified signal. It is important to have at least 50 feet of separation between the inside and outside antennas for the 50 dB signal boosters, 68 feet of separation distance for the 60 dB PCS signal boosters and at least 75 feet of separation distance for the 60 dB cellular signal boosters.

⚠ Warning: Connecting the signal booster directly to the cell phone with use of an adapter will damage the cell phone.

## Powering up a Wilson Electronics Signal Booster

1. ***IMPORTANT!*** Ensure that all cell phones and cellular data cards within 50 feet of the inside antenna are turned off.
2. To verify proper installation of the signal booster and antennas, make sure that the distance between the inside and outside antennas is a minimum of 50 feet for the 50 dB signal booster, 68 feet of separation distance for the 60 dB PCS signal booster, and 75 feet for the 60 dB cellular signal booster.
3. If you are using an outside Yagi antenna, never point the front of the Yagi toward the inside antenna.
4. Ensure that both the outside antenna coax cable and the inside antenna coax cable are connected to the signal booster before powering up the signal booster.
5. Plug the 6-volt power supply into the signal booster input marked “power” (carefully, to avoid damaging the center pin) and then into a wall outlet.

⚠ Warning: Use only the power supply provided in this package. Use of a non-Wilson Electronics product may damage your equipment (power supply sold separately in 801175).

⚠ Warning: Verify that both the outside antenna and the inside antenna are connected to the signal booster before powering up the signal booster.

NOTE: The aluminum casing of a Wilson Electronics signal booster will adjust very quickly to the ambient temperature of its environment. For example, in the summer, when the attic of a house can easily exceed 100 degrees Fahrenheit, the signal booster temperature may be 10 or more degrees higher. The casing will be hot to the touch. Such high temperatures will not damage the signal booster, nor do they pose a fire risk. As recommended in these instructions, install the signal booster in a location with adequate ventilation. Keep the area free of items that could block air flow to the signal booster.

## Understanding the Signal Booster Lights

**If your signal booster has this light configuration refer to the instructions below.**

The signal booster is equipped with sensitive electronics designed to detect signal booster oscillation or cell phone overload, both of which can hamper signal booster performance. The signal booster is designed to automatically reduce gain or, if necessary, shut down to prevent or compensate for these conditions. Oscillation or overload can be caused by improper equipment installation -- understanding the signal booster lights will help you identify and solve potential problems.

When the signal booster is initially powered on, the 60 light will turn green. This indicates the signal booster is working at the proper gain level.

If the 50 light is green, an oscillation has been detected and the signal booster is powering down. Verify that the outside Yagi antenna is pointed away from the inside antenna and not across the roof of the building. If need be, redirect the Yagi antenna so that it is pointing away from the inside antenna. Then, reset the signal booster by disconnecting and reconnecting the power supply.

If the 40 light is green, the signal booster is continuing to power down. Try operating the cell phone farther away from the inside antenna. If need be, redirect the Yagi antenna so that it is pointing away from the inside antenna. Then, reset the signal booster by disconnecting and reconnecting the power supply.

If the OSC light is solid red, the signal booster has shut down to prevent oscillation. Try operating the cell phone farther away from the inside antenna. Verify that the outside Yagi antenna is pointed away from the inside antenna and not across the roof of the building. If need be, redirect the Yagi antenna so that it is pointing away from the inside antenna. Then, reset the signal booster by disconnecting and reconnecting the power supply.

If the OSC light is blinking red, the signal booster has shut down to prevent a receive overload. Try moving the outside antenna further away from the cell tower.

## Understanding the Signal Booster Lights

**If your signal booster has this light configuration refer to the instructions below.**

The signal booster is equipped with sensitive electronics designed to detect signal booster oscillation or cell phone overload, both of which can hamper signal booster performance. The signal booster is designed to automatically reduce gain or, if necessary, shut down to prevent or compensate for these conditions. Oscillation or overload can be caused by improper equipment installation -- understanding the signal booster lights will help you identify and solve potential problems.

When the signal booster is initially powered on, the 65 light will turn green. This indicates the signal booster is working at the proper gain level.

If the 55 light is green, an oscillation has been detected and the signal booster is powering down. Verify that the outside Yagi antenna is pointed away from the inside antenna and not across the roof of the building. If need be, redirect the Yagi antenna so that it is pointing away from the inside antenna. Then, reset the signal booster by disconnecting and reconnecting the power supply.

If the 45 light is green, the signal booster is continuing to power down. Try operating the cell phone farther away from the inside antenna. If need be, redirect the Yagi antenna so that it is pointing away from the inside antenna. Then, reset the signal booster by disconnecting and reconnecting the power supply.

If the OSC light is solid red, the signal booster has shut down to prevent osciallation. Try operating the cell phone farther away from the inside antenna. Verify that the outside Yagi antenna is pointed away from the inside antenna and not across the roof of the building. If need be, redirect the Yagi antenna so that it is pointing away from the inside antenna. Then, reset the signal booster by disconnecting and reconnecting the power supply.

If the OSC light is blinking red, the signal booster has shut down to prevent a receive overload. Try moving the outside antenna further away from the cell tower.



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## Understanding the Signal Booster Lights

**If your signal booster has this light configuration refer to the instructions below.**

The signal booster is equipped with sensitive electronics designed to detect signal booster oscillation or cell phone overload, both of which can hamper signal booster performance. The signal booster is designed to automatically reduce gain or, if necessary, shut down to prevent or compensate for these conditions. Oscillation or overload can be caused by improper equipment installation -- understanding the signal booster lights will help you identify and solve potential problems.

The power light will turn green when the signal booster is initially powered on.

A ***BLINKING*** red light indicates a cell tower overload. Move the outside antenna further away from the cell tower.

When the D light is green, the signal booster is working at proper gain level (peak performance).

If light C is green but D is out, an oscillation has been detected and the signal booster is powering down. To remedy this, turn the outside antenna slightly away from the inside antenna until the D light turns green.

If light B is green and C and light D are off, an oscillation has been detected and the signal booster is powering down. To remedy this, turn the outside antenna slightly away from the inside antenna until the D light turns green.

If light A is solid red, the signal booster has shut down to prevent an oscillation. To remedy this, turn the outside antenna slightly away from the cell tower. The signal booster will reset automatically but may also be reset by disconnecting and reconnecting the power supply.

## Warnings and Recommendations

⚠ Warning: The Yagi antenna must always be located so the back or side points to the inside antenna. Never point the front of the Yagi antenna toward the inside antenna – oscillation will result, causing amber light and gain reduction.

⚠ Warning: The outside antenna must be installed on an outdoor permanent structure with a separation of at least 20 feet from all persons during normal operation.

⚠ Warning: Connecting the signal booster directly to the cell phone with use of an adapter will damage the cell phone.

⚠ Warning: **Connect both the outside and inside antenna cables to the signal booster before powering up the signal booster.**

⚠ Warning: Use only the power supply provided in this package. Use of a non-Wilson Electronics product may damage your equipment.

⚠ Warning: **RF Safety**: An inside antenna must have a separation distance from all persons that is at least 12 inches for the 5.2 dBi dome antenna and 15 inches for the 7 dBi panel antenna.

Lightning protection is recommended for all in-building installations.

## Finding Signal Strength and Calculating Coverage Distance

Signal strength and the corresponding coverage distance you can expect to achieve with your signal booster/antenna system are based on a combination of several factors: the received signal strength of your cell phone alone, the signal gain achieved by your signal booster and antennas and the signal loss from cables, taps and splitters you may be using.

To calculate your approximate signal coverage distance, you can enter this information into our Coverage Area Calculator on the Technical Support page on our website (www.wilsonelectronics.com). If you prefer, you can manually calculate your approximate signal coverage distance using the instructions on this and the following two pages.

First, measure the Outside Signal Level (OSL) at the intended outside antenna location using a cell phone in test mode. (For assistance, visit the Phone Test Modes section on the Technical Support page on our website or call 866-294-1660.) The OSL will always be a negative number. (Even if the cell phone shows a positive number, you will need to change it to a negative for this calculation.) Maximum signal strength is usually about -50. When the signal weakens to about -100 or worse, the call may be dropped.

Depending on the model, your signal booster gain (AG) will be 50, 60 or 65 dB (see the label on your signal booster or the specification table on the back cover of this guide). Your inside and outside antennas will also add signal gain, again depending on the antenna models you are using (see the table on page 13).

You will also experience some signal *loss* from cables, splitters and taps used to connect your system (see the table on page 13).

### Factor Conversions

Using the table below, find and circle the appropriate decibel (dB) numbers that correspond to the equipment in your particular system. Be sure to choose your numbers from the appropriate frequency column based on the service you receive (iDEN, Cellular or PCS).

| | Frequency | | |
|---|---|---|---|
| | iDEN 851 | Cellular 869 | PCS 1930 |
| **Antenna Factor (AF)** | | | |
| Low Profile (inside) | +3 dB | +3 dB | +3 dB |
| Dual-Band Panel (inside) | +7 dB | +7 dB | +7 dB |
| Dual-Band Dome (inside) | +2 dB | +2 dB | +2 dB |
| Dual-Polarity Dome (inside) | +5 dB | +5 dB | +5 dB |
| Yagi 806-939 MHz Cellular (outside) | +13 dB | +13 dB | +13 dB |
| Yagi 800-900 MHz Cellular (outside) | +10 dB | +10 dB | +10 dB |
| Yagi 1800-1900 MHz PCS (outside) | +14 dB | +14 dB | +14 dB |
| **Cable Factor (CF)** | | | |
| 20' RG 58 | -4 dB | -4 dB | -7 dB |
| 20' Wilson 400 | -3 dB | -3 dB | -4 dB |
| 30' Wilson 400 | -3 dB | -3 dB | -5 dB |
| 50' Wilson 400 | -4 dB | -4 dB | -7 dB |
| 100' Wilson 400 | -7 dB | -7 dB | -10 dB |
| **Splitter Factor (SF)** | -3 dB | -3 dB | -3 dB |
| **Tap Factor (TF)** (depends on model - refer to tap label) | -6/-10 dB | -6/-10 dB | -6/-10 dB |

Use the following formula to calculate your Signal Strength (S). Write in your numbers as appropriate. Be sure to account for the length of **all** cable, inside and out. Add up the numbers for **all** taps and/or splitters (if you are not using any, enter 0). Remember, AG and AF will be positive numbers; OSL, CF, TF, SF and S will be negative.

OSL + AG + AF + CF + SF + TF = S

Once you have calculated your signal strength, use the graph on the following page to determine approximate coverage distance. See below for a sample calculation.

### Sample Signal Strength and Coverage Calculation

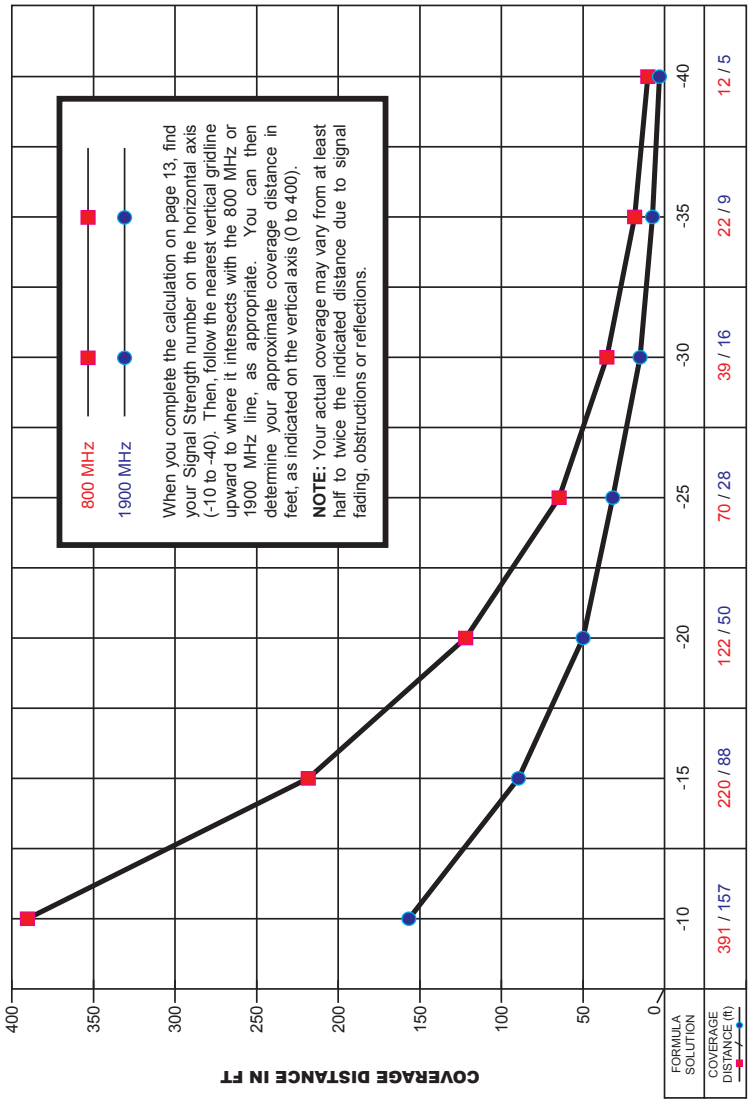
This example assumes an OSL of -90, use of a 60 dB cellular signal booster, an 806-939 MHz Yagi antenna and a low profile inside antenna with 100 total feet of inside and outside 9913 cable with no splitters or taps.

OSL -90 (always a negative number) found on cell phone in test mode
AG +60 gain
AF +16 dB gain (+13 dB for the Yagi antenna and +3 dB for the low-profile antenna)
CF -7 dB loss
SF 0 (none used)
TF 0 (none used)

Formula: -90 + 60 + 16 + -7 + 0 + 0 = -21

With a signal strength of -21, coverage distance would be approximately 120 feet from the inside antenna.

## INSIDE BUILDING COVERAGE DISTANCE


800 MHz
1900 MHz
When you complete the calculation on page 13, find your Signal Strength number on the horizontal axis (-10 to -40). Then, follow the nearest vertical gridline upward to where it intersects with the 800 MHz or 1900 MHz line, as appropriate. You can then determine your approximate coverage distance in feet, as indicated on the vertical axis (0 to 400).
NOTE: Your actual coverage may vary from at least half to twice the indicated distance due to signal fading, obstructions or reflections.
COVERAGE DISTANCE IN FT
400
350
300
250
200
150
100
50
0
FORMULA SOLUTION
COVERAGE DISTANCE (ft)
-10
-15
-20
-25
-30
-35
-40
391 / 157
220 / 88
122 / 50
70 / 28
39 / 16
22 / 9
12 / 5
SIGNAL STRENGTH


*Contact Wilson Electronics Technical Support Team with any questions at 866-294-1660 or email: tech@wilsonelectronics.com. Hours: 7 am to 6 pm MST.*

**30-Day Money-Back Guarantee**

All Wilson Electronics products are protected by Wilson Electronics 30-day money-back guarantee. If for any reason the performance of any product is not acceptable, simply return the product directly to the reseller with a dated proof of purchase.

**1-Year Warranty**

Wilson Electronics signal boosters are warranted for one (1) year against defects in workmanship and / or materials. Warranty cases may be resolved by returning the product directly to the reseller with a dated proof of purchase.

Signal boosters may also be returned directly to the manufacturer at the consumer's expense, with a dated proof of purchase and a Returned Material Authorization (RMA) number supplied by Wilson Electronics. Wilson Electronics shall, at its option, either repair or replace the product. Wilson Electronics will pay for delivery of the repaired or replaced product back to the original consumer within the continental United States.

This warranty does not apply to any signal boosters determined by Wilson Electronics to have been subjected to misuse, abuse, neglect, or mishandling that alters or damages physical or electronic properties.

The Manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device.

Operation is subject to the following two conditions: (1) This device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

Disclaimer: The information provided by Wilson Electronics, Inc. is believed to be complete and accurate. However, no responsibility is assumed by Wilson Electronics, Inc. for any business or personal losses arising from its use, or for any infringements of patents or other rights of third parties that may result from its use.

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www.wilsonelectronics.com
Phone: 866-294-1660 Fax: 435-656-2432

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## In-Building Wireless Signal Booster Specifications (GSM & Cellular)

| Model/Part Number | Cellular # 801105/801175 | Cellular # 801106 | Cellular #801108 | Cellular #801110 | Cellular #801165 |
|---|---|---|---|---|---|
| | | | | | |
| Frequency | | | | | |
| Uplink | 824-849 MHz | 824-849 MHz | 824-835 MHz | 835-849 MHz | 824-849 MHz |
| Downlink | 869-894 MHz | 869-894 MHz | 869-880 MHz | 880-894 MHz | 869-894 MHz |
| Gain | 50 dB | 60 dB | Channel A 60 dB | Channel B 60 dB | 65 dB |
| Max Output | 3 watts | | | | |
| AGC Limit (uplink/downlink) | + 30 dBm / + 30 dBm | | | | |
| Noise Figure | 3-4 dB typical | | | | |
| Flatness (uplink/downlink) | ± 2.5 dB | | | | |
| Isolation (uplink/downlink) | > 90 dB | | | | |
| Power Requirements | Input: 100-240 V AC 50/60 Hz 0.6 A / Output: 6 V DC 3 A | | | | |
| Connectors | N-Female 50 ohms | | | | |
| Dimensions | 5.6 x 3.6 x 1.7 (inch) / 14.2 x 9.1 x 4.4 (cm) | | | | |
| Weight | 1.5 lbs / .7kg | | | | |

## In-Building Wireless Signal booster Specifications (iDEN, PCS, EGSM & DCS)

| Model/Part Number | iDEN # 804005 | iDEN # 804006 | PCS # 801306 | PCS # 801365 | EGSM #801506 | DCS #801606 |
|---|---|---|---|---|---|---|
| | | | | | Not for sale in the U.S. or Canada | |
| Frequency | | | | | | |
| Uplink | 806-821 MHz | 806-821 MHz | 1850-1910 MHz | 1850-1910 MHz | 880-915 MHz | 1710-1755 MHz |
| Downlink | 851-866 MHz | 851-866 MHz | 1930-1990 MHz | 1930-1990 MHz | 925-960 MHz | 1805-1880 MHz |
| Gain | 50 dB | 60 dB | 60 dB | 65 dB | 60dB | 60dB |
| Max Output | 3 watts | | 2 watts | | 3 watts | |
| AGC Limit (uplink/downlink) | + 30 dBm / + 30 dBm | | +30 dBm / +30 dBm | | | |
| Noise Figure | 3-4 dB typical | | 4 dB typical | | 3 dB typical | |
| Flatness (uplink/downlink) | ± 2.5 dB | | ± 4 dB | | | |
| Isolation (uplink/downlink) | > 90 dB | | | | | |
| Power Requirements | Input: 100-240 V AC 50/60 Hz 0.6 A / Output: 6 V DC 3 A | | | | | |
| Connectors | N-Female 50 ohms | | | | | |
| Dimensions | 5.6 x 3.6 x 1.7 (inch) / 14.2 x 9.1 x 4.4 (cm) | | | | | |
| Weight | 1.5 lbs / 0.7 kg | | | | | |